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A new species of acanthocephalans, *Bolbosoma tuberculata* sp. n., (fam. Polymorphydae Meyer, 1931) - a parasite of whales

by A.S. Skryabin

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A new species of acanthocephalans, *Bolbosoma tuberculata* sp. n., is described from a Bryde's whale, sei whale and sperm whale caught in the South Atlantic and Indian Ocean.

During our study of acanthocephalans collected in commercial whales of the southern hemisphere (1963-1964 and 1965-1966), we established a new species of *Bolbosoma*, which is described in this paper.

Hosts: *Balaenoptera borealis* Lesson - sei whale, *B. edeni* Anderson - Bryde's whale, *Physeter catodon* L. - sperm whale.

Localization: intestine.

Occurrence: South Atlantic, Indian Ocean.

Material: Twenty specimens of acanthocephalans from different hosts. Holotype ♂ (No. 1123, Bryde's whale) and paratypes stored at Helminthological Museum of the Department of Zoology of the Crimean State Pedagogical Institute.

Description of species (Figs. 1 and 2). Large acanthocephalans with a well-defined bulb. Surface of bulb covered with spines almost completely embedded in cuticular tubercles. Length of spines in anterior part of bulb 0.049-0.060 mm, in posterior part 0.013-0.15 mm. Diameter of cuticular tubercles also increases toward posterior part of bulb, from 0.06-0.08 to 0.11-0.17 mm. Proboscis almost cylindrical in anterior part, sometimes with small constriction in the middle, posterior half conical, perceptibly expanding toward base. Hooks on proboscis arranged in 25-26 (rarely 24 and 27) rows, 8 (sometimes 7) hooks to a row. 2nd hook the longest, 7th hook the thickest, last hook much smaller than the others and with an undeveloped root. Cusp of hooks in one longitudinal row 0.066x0.011 mm (1st), 0.068x0.012 mm (2nd), 0.063x0.013 mm (3rd), 0.060x0.014 mm (4th), 0.055x0.015 mm (5th), 0.053x0.017 mm (6th), 0.045x0.019 mm (7th), 0.023x0.009 mm (8th).

Roots of hooks sit deep in tissue of proboscis, cusps of all hooks except last one with their bases embedded in funnel-shaped recesses (sheaths), so that only their front ends stick out (Fig. 1, 2). Neck conical. Lemnisci flagelliform. Proboscis receptacle 2-layered; nerve ganglion located near its middle.

Male (described from holotype with some additional details of internal structure described from paratype of same size). Length of body without evaginated copulatory bursa 29 mm, maximum width (near posterior end) 2.9 mm, minimum width (behind bulb) 0.8 mm. Length of armoured part of proboscis 0.58 mm, width in front 0.37 mm, in middle 0.35 mm, at base 0.58 mm. Neck 0.66 mm long. Lemnisci 21.0 and 23.5 mm long, about 0.17 mm wide at most. Proboscis receptacle 1.70x0.45 mm. Armoured part of bulb 2.0 mm long, maximum width 3.05 mm.

Testes oviform, lie adjacent (in some specimens not touching) and obliquely to each other in anterior half of body. Anterior testis 1.55x1.11 mm, posterior one 1.58x1.12 mm. Three pairs of tubular cement glands arise at various levels behind testes, 8.5-11.2 mm long, 0.22-0.34 mm wide.

Female (described from paratype). Length of body 31 mm, maximum width (near middle) 3 mm, minimum width (behind bulb) 0.85 mm. Length of armoured part of proboscis 0.68 mm, width in front 0.47 mm, in middle 0.45 mm, at base 0.68 mm. Neck 0.66 mm long. Lemnisci

about 31 mm long, maximum width 0.21 mm. Proboscis receptacle 1.90x0.52 mm. Armoured part of bulb 2.2 mm long, maximum width 3.25 mm.

Uterus in the form of an elongated flask with expanded part directed anteriorly, and narrowed part posteriorly, 4.7 mm long, maximum width 1.5 mm. Uterine bell 0.57x0.37 mm. Ripe eggs (in uterus) 0.099-0.106x0.024-0.026 mm, contain embryonic larva with hooks on one end.

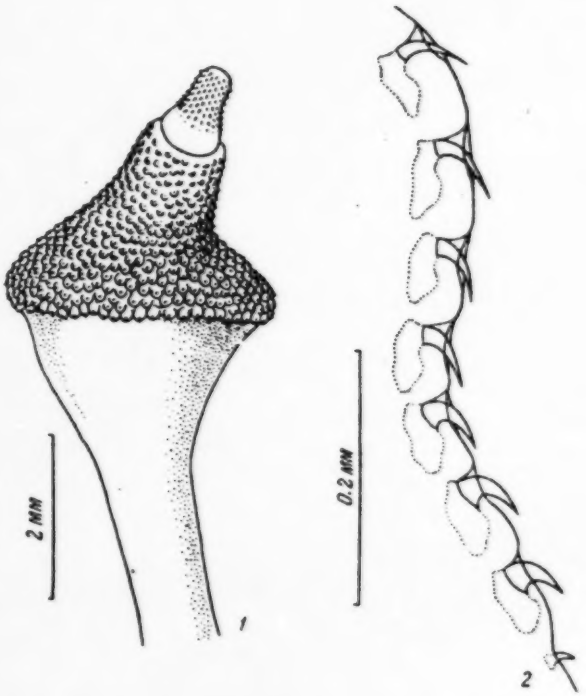

Fig. 1. *Bolbosoma tuberculata* sp. n.
1 - anterior end of body; 2 - longitudinal row of hooks on proboscis

Variability of species. Male (based on measurements of 10 specimens from different hosts). Length of body 16-39 mm, maximum width 1.7-3.3 mm, minimum width 0.6-0.9 mm. Length of armoured part of proboscis 0.57-0.58 mm, width in front 0.37-0.39 mm,

in middle 0.35-0.41 mm, at base 0.54-0.58 mm. Proboscis receptacle 1.64-1.80x0.45-0.51 mm, bulb 1.2-2.3x1.7-4.0 mm. Length of lemnisci 18.5-29.0 mm. Testes 1.55-1.85x1.00-1.41 mm. Testes in 16 mm specimen still underdeveloped, 0.38-0.41x0.17-0.23 mm. Cement glands 8.5-15.2x0.20-0.41 mm. Cement glands in smallest specimen rudimentary, about 4 mm long.

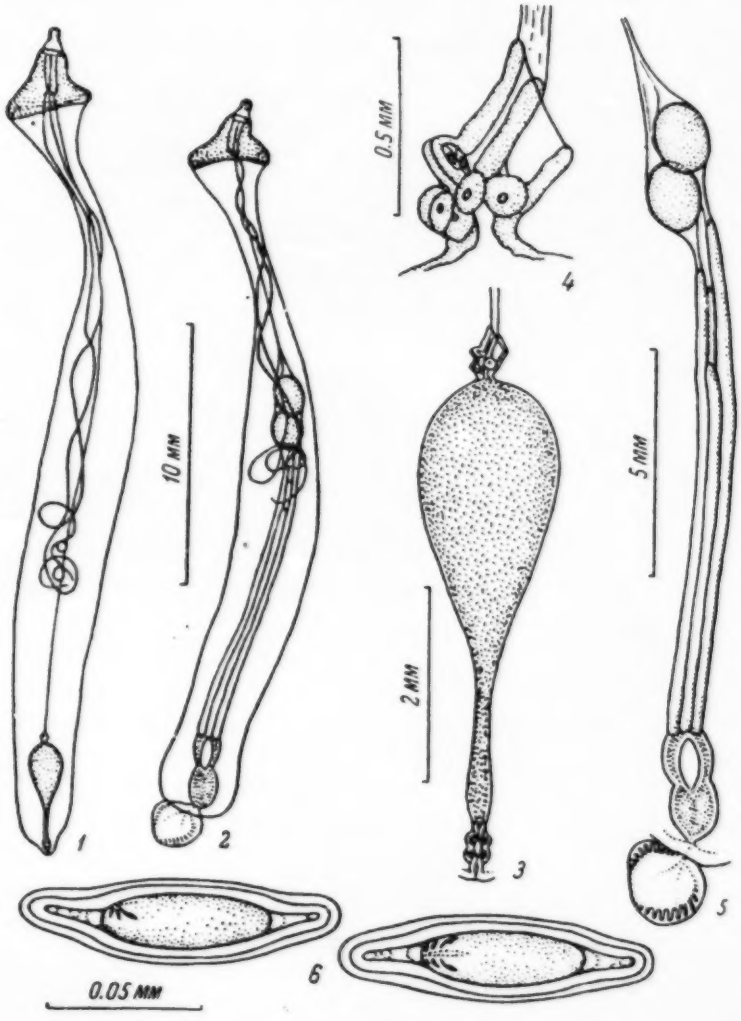

Fig. 2. *Bolbosoma tuberculata* sp. n.

1 - female; 2 - male; 3 - reproductive system of female; 4 - uterine bell; 5 - reproductive system of male; 6 - eggs

Female (based on measurements of 10 specimens from different hosts). Length of body 25-39 mm, maximum width 2.7-3.6 mm, minimum width 0.75-0.90 mm. Length of armoured part of proboscis 0.51-0.75 mm, width in front 0.33-0.47 mm, in middle 0.33-0.45 mm, at base 0.51-0.68 mm. Proboscis receptacle 1.75-1.90x0.38-0.52 mm, bulb 1.7-2.5x2.7-3.6 mm. Length of lemnisci 21.0-35.0 mm. Uterus 3.3-5.0 mm long and 0.6-1.5 mm wide, uterine bell 0.52-0.58 mm long and 0.34-0.38 mm wide. Ripe eggs of acanthocephalans from Bryde's whales caught in Indian Ocean slightly smaller (0.095-0.110 mm, very rarely 0.117x0.023-0.026 mm) than in those from sei whales caught in Atlantic Ocean (0.099-0.117x0.026-0.028 mm). Three comparatively large acanthocephalans found in two sperm whales had no eggs. In some sperm whales, none of the acanthocephalans had any eggs either.

Differential diagnosis. At the present time (Delyamure, 1955; Petrochenko, 1958; A. Skryabin, 1959), the genus *Bolbosoma* Porta, 1908 combines 13 species, 11 of which have been noted in sea mammals. The new species differs from all the known species of this genus in the number of hooks on the proboscis, but it is closest in this character to *B. balaenae* (24 longitudinal rows with 8 hooks in each), *B. physeteris* (20-24 rows with 7-8 hooks in each) and *B. hamiltoni* (24 rows with 7-8 hooks in each). However, the new species is distinguished from all the species by a larger number of longitudinal rows of hooks (25-26, less commonly 24 and 27), a smaller body, smaller eggs, the presence of cuticular tubercles on the bulb, and by other characters. The new species is similar only to *B. turbinella* where the cuticular tubercles on the bulb are concerned; however, it is distinguished from it by a much larger number of longitudinal rows of hooks on the proboscis (19-20, sometimes 22 longitudinal rows in *B. turbinella*), a longer body, smaller eggs, and other characters. Furthermore, the new species is distinguished from all the known species of the genus *Bolbosoma* by an unusual structure of the proboscis and the way in which the hooks are inserted (bases of cusps embedded in their own sheaths).

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